Government of Guam

Information Technology Strategic Plan

November 2010

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EXECUTIVE SUMMARY

The Government of Guam has engaged in a series of projects to improve its financial management. In 2003 the Department of Administration, Department of Revenue and Taxation and the Bureau of Budget and Management Research developed a Financial Management Improvement Plan (FMIP) to focus their efforts on the highest priority, strategic needs of the government. The agencies implemented so successfully and over such a short period of time, by late 2004 they needed to update the plan and identify new strategic priorities. This plan, called the 2005 FMIP, developed a strategic goal that states **'the Department of Administration (DOA) and/or the Bureau of Information Technology will provide leadership and oversight in the development, procurement, management, and operation of Government of Guam (GovGuam) information technology'.**

In 2005 The Executive Order 2005-25 was issued creating the Bureau of Information Technology (BIT) with the Chief Information Officer (CIO) as its director.

BIT is the agency tasked to document Enterprise Architecture and formulate an Information Technology Strategic Plan. The architecture defines the target technical environment by defining standards, design criteria, and skills needs for the future. The strategic plan shows how to achieve the target architecture by articulating the organizational, human resource, budget, and administrative changes needed to support implementation of the architecture. By implementing these complementary documents together, BIT can provide the Government of Guam with the technical, organizational, budgetary, and governance processes and systems it needs to build its IT infrastructure for the future.

The Information Technology Strategic Plan (ITSP) comprised five sections. The first section addresses the background of the project and defines what the ITSP and Enterprise Architecture (EA) are. The second section describes the scope and methodology used to develop the plan. In the third section, the plan establishes some basic principles used to guide the development of the ITSP and EA, and analyzes the trends in technology affecting the field. The section also

describes Guam's current IT environment and briefly envisions the desired IT environment of the future. The fourth section presents the strategic goals developed by the ITSP team and abbreviated action plans indicating how to achieve those goals. The strategic goals are to:

1. Plan and budget enterprise-wide for information technology investments (and include life cycle planning and budgeting).
2. Implement the Enterprise Architecture.
3. Establish and use effective governance processes, policies, procedures, and organizational structures for IT decision-making and management.
4. Establish appropriate staffing levels and hire and train staff to be fully proficient.

Finally, the fifth section identifies critical success factors that must be in place for the EA and ITSP to be implemented successfully.

Government of Guam
Information Technology Strategic Plan

The Government of Guam has undertaken numerous activities to improve its services to the public, increase its effectiveness, and operate in a more cost-effective manner. In 2003 the Department of Administration (DOA), Department of Revenue and Taxation (DRT) and Bureau of Budget and Management Research (BBMR) developed a Financial Management Improvement Plan (FMIP) to improve its most critical financial operations. The FMIP implementation progressed so quickly and so well, GovGuam updated the 2003 FMIP and issued a new FMIP in 2005.

In 2005 The Executive Order 2005-25 was issued creating the Bureau of Information Technology (BIT) with the Chief Information Officer (CIO) as its director. The CIO position was filled in October 2005.

Also in the 2005 FMIP, GovGuam established a strategic goal to improve its information technology operations to better support the business needs of the government. The goal stated that **'the Bureau of Information Technology will provide leadership and oversight in the development, procurement, management, and operation of GovGuam information technology'.**

To accomplish this goal, BIT needed to develop an enterprise-wide strategic plan for the use of information technology (IT) within the government and an enterprise-wide target architecture to establish IT standards and design guidelines. The Information Technology Strategic Plan (ITSP) and Enterprise Architecture (EA) are companion documents that detail what the IT environment of the future will be (the Enterprise Architecture) and how GovGuam will achieve this future environment (the ITSP).

1. Background

The purpose of information technology is to support the business needs and operations of the Government of Guam. The government is facing new and serious challenges including: citizen expectations for online government services, greater efficiency, increased transparency, and better service, implementation of new political initiatives from the legislature, and severe fiscal constraints that require more cost-efficient processes for accomplishing agency missions. IT can assist the government in restructuring business operations to improve its service to the citizens of Guam and enhance the cost-efficiency of its programs.

GovGuam's current information technology reflects the capabilities and application approaches common to prior decades. The legacy systems, while serving GovGuam well in the past, are difficult and expensive to modify as business needs change. Many of the existing systems are not able to communicate with each other, and when the need arises to have them interoperate, the interfaces are extremely expensive to implement. A new technical architecture is needed to help Guam become more adaptive to changing business requirements and facilitate the improvement of government operations and services.

What is an ITSP?

The ITSP is a top-down enterprise-wide strategic plan created to achieve GovGuam's strategic goal of providing leadership for and oversight of all the government's information technology resources. The plan details how to implement the Enterprise Architecture, develop the staff skills needed to lead Guam's IT community, establish the governance processes and structures to manage information technology as an enterprise resource, and transition from the current environment to the desired future state. This future environment requires technology that can communicate, interoperate, and share data and resources while reducing the costs associated with training, maintenance, and support through the implementation of the Enterprise Architecture.

The ITSP is not intended to limit or constrain department and agency creativity but to provide a stable, robust, modern infrastructure and environment in which to solve their business problems and allow agencies to collaborate on significant cross-departmental efforts. The plan is built on an IT model of management which employs the best features of both centralized and decentralized IT management, support, and decision-making.

Why develop an ITSP?

The ITSP provides a focus for GovGuam and its agencies to discuss and come to agreement on the application of information technology to the government's business needs. It serves as a framework for budgeting, planning, and managing GovGuam's IT resources. The plan provides direction, establishes governance processes, and documents the desired future state of IT in GovGuam.

What do we do with the ITSP?

The ITSP is used to implement the Enterprise Architecture and achieve GovGuam's vision for its IT future. By following the plans contained in the ITSP, Guam can develop the technical environment it needs, the human resource skills necessary to manage the new environment, and the governance and leadership mechanisms for fulfilling its strategic goals.

The ITSP and the Enterprise Architecture (EA)

The Enterprise Architecture and ITSP are complementary documents. The EA describes the current IT environment, the desired target architecture, and the actions needed to transition from the current to the target architecture. It focuses primarily on the technical issues involved in changing the IT environment. The ITSP takes a broader perspective on the transition process. It identifies the strategic goals that must be achieved for DOA to provide leadership and oversight

of all IT resources. It addresses the management, budget, and governance challenges facing the transition and develops specific action plans to resolve the issues. Implementing the EA and ITSP together, GovGuam can provide both the technical and organizational leadership needed to fulfill its IT mission.

Enabling authority

Current law clearly assigns responsibility and accountability for all of the necessary actions to the Director of DOA. The *Automatic Data Processing Act* (Public Law 5 GCA Div. 2, Chapter 20, Article 2) states:

"The Director shall, with the due regard for the functions of the agencies concerned, establish standards, procedures, and techniques for computer system design, analysis, programming, and operations for effective utilization of resources; review and prioritize sequences for implementation of systems submitted by user departments and agencies; make continuing evaluations of the applicability of new technological developments; make continuing performance audits of all data processing activities to insure efficient maximum utilization of resources and to analyze effectiveness of reports generated; evaluate hardware and software requirements and analyze available hardware and software capabilities; solicit service needs of user departments and agencies and render assistance to them as is necessary; and perform such other duties as are necessary and proper to the management and operations of data processing."

Executive Order 2005-25 which created the BIT, effectively transferred these responsibilities to the office of the CIO.

2. Approach to Developing the ITSP

The development of the ITSP was a collaborative effort among DOA, DRT, BIT, and BBMR. The Department of Interior and the Graduate School, USDA, provided consultants to facilitate the development process. Participants in the development effort considered the needs, interests, and concerns of other agencies and departments throughout the process.

Scope

The EA and ITSP apply to all GovGuam line agencies in the Executive Branch. The architectural principles and standards apply to all IT products, systems and projects. At this time the ITSP addresses governance and staffing issues relevant to DOA and BIT, but the staff skills developed and the governance processes established will make it even easier to incorporate new agencies in the future.

Methodology

Staff selected from DOA, DRT, BIT, and BBMR developed the ITSP with facilitation support from consultants from the Graduate School, USDA. The Executive Steering Committee (ESC), originally created to implement the FMIPs and lead the configuration management process, provided oversight and direction to the development process. The development team conducted a SWOC (Strengths, Weaknesses, Opportunities, and Constraints) analysis. They then discussed guiding principles for the IT environment of the future and technological trends that will affect that environment.

Using all of this information as background, the team discussed the issues and opportunities facing GovGuam. The team described the current IT environment and envisioned the future IT environment they would like to create for the government. The team then generated a list of goals which, if achieved, would fulfill their vision of the future. These goals were consolidated and prioritized to produce the final four strategic goals.

For each strategic goal the ITSP team described the goal, the current situation, the desired future state, and how to reach the future state. They also developed performance measures to indicate whether the future state had been reached. Finally, the team prepared action plans to achieve the strategic goal.

3. Analysis of Guam's IT Needs

In assessing Guam's needs for information technology, the ITSP team developed certain core principles to form the foundation for guiding the development of the Enterprise Architecture and desired future state of IT in the government. The team also analyzed trends in technology to ensure its EA and desired IT future were consistent with and supportive of the direction of the industry and profession. Using this information as a start, the team described the current IT situation in GovGuam, the desired future state, and the migration path that leads the government from where it is to where it wants to be.

Guiding Principles

One can define many different futures for IT in an enterprise and one can construct many different architectures. With no guidelines or guiding principles, no architectural constructs or values, there is no assurance the end products will meet the needs of the organization. Therefore, the ITSP team articulated a set of overarching guiding principles that would drive both the architecture and the vision of the desired future state for IT. These guiding principles, though few in number and seemingly very simple, determine many of the characteristics of the EA and the IT future state. They affect decisions, or in some cases determine decisions, at every level of the architecture and throughout the definition of the future IT state. These principles are:

- Information technology, IT staffing and the IT budget are enterprise resources.
- Information exists to support the business objectives of GovGuam.
- Technology and technology investments must be viewed from an enterprise perspective.
- The business priorities and functional requirements of the government will determine investments in information technology.
- Information is an enterprise strategic resource.

- Government must provide electronic access to information and services while maintaining security and privacy.
- The Government's data must be accurate and collected only once in a timely and efficient manner according to life-cycle standards.
- GovGuam and its information technology must become an integrated enterprise.

In addition, the IT function itself has three principles to reduce its costs and increase its efficiency:

- Co-locate physical space and resources to reduce overhead costs.
- Consolidate platforms to reduce training, maintenance, space and operator costs and maximize the use of staff resources.
- Integrate platforms, applications and data to share resources and reduce development and operation costs.
- New applications must be developed more rapidly and modified more easily as business needs change.

Trends in Technology

Many trends in technology affect the decisions IT organizations make and determine the directions they take. It is difficult, if not impossible to fight the trends, but riding the trends, and planning to take advantage of them, makes the IT function vastly more effective while reducing costs. Some of the trends in technology that will affect GovGuam's IT future are:

- The rapid creation of new technologies will shorten the useful life of technology (the life-cycle).
- The growth of Internet based commerce and customer service will result in an increasing focus on security and privacy.
- The Internet will drive the technical standards for applications and network computing.
- The rapidly expanding use of Internet technology will be used to redesign and redefine business processes.

- There will be a shortage of qualified IT staff.
- The performance of computer hardware will continue to grow exponentially, while costs continue to decline dramatically.
- The convergence of voice, data, and video has begun and will accelerate quickly.
- New ways to connect to the computing environment are appearing.
- The use of Geospatial technologies (GIS) is increasing across the enterprise.
- Application delivery will be increasingly component based.
- Market forces will continue to dominate over superior technology.
- Data warehousing applications and uses will experience very high growth.
- The drive for interconnectivity and interoperability will blur traditional boundaries (especially organizational boundaries).
- Collaborative computing environments are enabling organizations to better marshal and focus their intellectual resources.
- Enterprises are using virtualization technologies to reduce equipment and administrative costs and establish a unified system management approach for corporate computing.

Current State of Information Technology Resources in GovGuam

DOA currently has centralized operations for GovGuam's financial and budget systems, Personnel Management Information System (PMIS), a wide area network (GGWAN), Internet and email services, and miscellaneous other systems. DOA also provides guidance and support to other agencies and their information technology staffs.

Over the years GovGuam agencies have created their own information technology sections, functions, and operations. These sections have developed their own system architectures, procured systems that may or may not meet their own (or government-wide) standards, and evolved into segregated and uncontrolled systems. This situation increases overall IT costs for

the government of Guam, duplicates IT resources, and makes communication across systems difficult, if not impossible. Much of the technology in the departments is becoming obsolete and replacements or upgrades on a department-by-department basis would be cost-prohibitive. Similarly, qualified IT staff is hard to hire and retain, and decentralized IT equipment requires more staff than centralized assets.

The IT consolidation initiative is currently in early stages of implementation. This initiative calls for the consolidation of IT facilities into a government data center and secondary center designated as a disaster-recovery site.

Government-wide software and hardware standards established by BIT are enforced at various phases of the procurement process.

Desired Future State of Information Technology Resources in GovGuam

GovGuam will have a unified enterprise architecture and all IT resources will be compliant with, and components of, this architecture. Standards will be established using 'best practices' and adhered to for all IT resources. At a minimum these standards will address security, data and data sharing, communications, compatibility, contingency plans and disaster recovery, and back-up/recovery. Systems will interface easily, seamlessly, effectively, and cost-efficiently. Government-wide IT resources will be applied effectively and cost-efficiently. All IT resources will be current and life cycle management schedules will be developed and funded. GovGuam will have sufficient qualified IT staff and resources. IT budget and annual spending plans will be developed and managed to maximize the value to the government of Guam overall. The public will have ready access to GovGuam information and be able to conduct transactions with GovGuam agencies on-line.

GovGuam will create and operate services on-line that are accessible 24 hours a day, seven days a week. It will deliver integrated enterprise information systems and infrastructure that improve public access to government functions and information, streamline business processes to simplify

agency-public interactions and reduce costs, and meet the legal and business needs of government agencies. The technology will enable agencies to continually improve government efficiency and effectiveness, while also allowing applications to be developed more rapidly, easily, and inexpensively as business needs change.

GovGuam's IT infrastructure will be in a fully consolidated server and data environment. This environment will be staffed and maintained by government IT personnel and certified private sector technology partners. These public-private partnerships will promote operational best practices and contribute to government IT staff development.

Migration Path from Current State to Desired Future State

The transition from the current state to the future state will take several years. Although major aspects of the transition can be planned, scheduled, and implemented according to planned milestones, many components of the transition occur as external events allow (or dictate) them. For instance, ongoing technology consolidation efforts have resulted in a number ofline agencies relocating to GovGuam's primary data center. EA efforts will be localized where practical and can be implemented for BIT/DOA, in 2010. EA standards and design features will not be imposed on legacy systems, but as these legacy systems are replaced or upgraded, they should be required to conform to the EA. The staff development activities need to start now, but will take years to align staff skills with those required by the EA. Governance processes and structure can be established now, so that as more agencies join the EA, governance will be well established and functioning smoothly.

4. Strategic Goals

The ITSP team generated a list of all the things that need to occur for GovGuam to reach its desired future state in information technology. These goals were consolidated, summarized and prioritized to produce the most important goals for GovGuam to achieve. These four strategic goals, when accomplished, create the IT environment of the future.

Strategic Goal 1-- Plan and budget enterprise-wide for information technology investments (and include life cycle planning and budgeting).

Information technology is a GovGuam asset. Technology planning, budgeting, and investment decisions should be made from an enterprise perspective, not that of individual departments or agencies. An enterprise-wide point-of-view is necessary to ensure that GovGuam's limited IT resources are used in the most effective and cost-efficient manner. A strong technology infrastructure is required to support both enterprise-wide applications and department and agency specific projects.

Where are we now?

Although BIT has established enterprise agreements with major software vendors to reduce IT costs, GovGuam still plans, budgets and executes IT projects at the department level. The budget and accounting systems do not allow easy analysis of IT investments. Thus it is not a simple task to determine how much GovGuam is budgeting and spending on information technology annually. There is limited government inventory of IT projects needed. Government-wide prioritization of IT spending is in practice in most critical agencies. There are approved technical architecture standards which are enforced primarily during procurement of technology. No life cycle planning and budgeting occur, so costs are often underestimated and not fully budgeted.

Although current law and an Executive Order directs the DOA Data Processing and BIT to oversee policy and operational aspects of government technology, both entities do not have the staff, resources, capabilities, or support from line agencies to completely fulfill this mission.

Where do we want to be?

GovGuam will plan and budget for IT investments on an enterprise-wide basis. IT budgets will require the approval of BIT prior to submission for legislative approval. It will develop and maintain an inventory of necessary IT projects and prioritize them at the enterprise level. The government, its employees and the public will be able to account for and track funds budgeted for IT investments, IT expenditures, and project results by department and enterprise-wide. IT projects will budget for the entire project life-cycle, including maintenance costs, licensing costs, and likely upgrade costs. Guam's method of expensing and capitalizing IT investments will be changed to match that used by the federal government. An enterprise-wide committee (see Strategic Goal 3) will review IT budget submissions, prioritize approved IT investments, and recommend to BBMR which projects to fund and at what level.

How do we get there?

The governance processes, policies, procedures and structures must be established to manage enterprise-wide planning, budgeting, funding, and project accountability (see Strategic Goal 3). The current BIT, DOA, and BBMR need to define the information required to plan, budget, and fund IT projects. At a minimum, the information would include length of life-cycle, life-cycle costs (including maintenance and licensing costs), volume to be acquired, cost per item, and the business need for the investment. DOA/BIT should then use this information to produce a five-year 'snapshot' of the relatively mundane, ongoing IT needs and anticipated costs.

DOA/BIT, with input from BBMR, need to develop the methodology to track and monitor IT budgets and expenditures. As part of the 2011 budget call, based on the methodology developed by DOA, BBMR needs to formalize a process for enterprise IT budgeting and require departments and agencies to submit specific IT investment proposals with their budgets requests.

How will we know we did it?

We will know we accomplished this strategic goal by collecting and monitoring these performance measures:

- Number and percentage of departments/agencies submitting IT budget requests to BIT
- Percent of IT expenditures approved by the BIT
- Use of multi-year technology life-cycle
- Use of multi-year budget document

Strategic Goal 1 - Plan and budget enterprise-wide for information technology					
		TASK	**WHO**	**WHEN**	**COMMENTS**
1		Identify how much money and the source of funds spent this year on information technology	Ken	4/30/2005	Baseline data center budget submitted to BBMR by BIT
	1.1	Provide information to ITEC at first meeting			
2		Establish codes for tracking purchases and life cycle items	Ken, John, Bill	4/30/2005	
	2.1	Get input from accounting			
	2.2	Include codes for budgeting, expenditures, subcategories			
	2.3	Provide departments instructions on using the new codes			
3		Establish guidelines for monitoring expenditures	Ken, Claudia, Joey	5/31/2005	
	3.1	Include ITEC, BBMR, GSA			
	3.2	Research the need for submitting through AAA; consider a circular			
4		Establish guidelines for budget call to ensure ITEC has clear and appropriate information for decisions	Ken, Joey, John, Bill	8/30/2005	
	4.1	Depts and agencies must present a business case for IT purchases or projects			
	4.2	Provide details on what they plan to buy and the associated lifecycle costs			
5		Establish guidelines and criteria on how ITEC will decide on priorities and expenditures	Joey, Ben, Ken	TBD	
6		Create a multi-year life cycle plan for technology	Kathrina, Mike	8/30/2005	
	6.1	Plan for obsolecence			
	6.2	Monitor when hardware becomes obsolete			

	6.3	Develop multi-year budget plan for technology replacements and upgrades			
	6.4	Develop multi-year budget for ongoing IT costs (maintenance, licenses, IT services, etc.)	BIT	2007	
7		Increase the definition of capitalization amounts to match federal funds (raise from $500 to $5000)	Lou, Carlos, John	4/30/2005	
	7.1	Check with accounting and GASB 34 experts			
	7.2	Include fixed assets & other GASB requirements			
8		Establish budget process for funding multi-year technology training plan	Joey, Ben, Ken	12/31/2005	

Strategic Goal 2—Implement the Enterprise Architecture.

The Enterprise Architecture establishes the government-wide direction for implementation of information technology. Deploying IT resources without an architecture framework is like constructing a city without plans for rights of way, utilities, zoning, building codes, or any other rules, regulations, ordinances, or city-wide planning. Those plans and guidelines differentiate a well-planned and efficiently operating city to one that just sprang up, unplanned and out of control. An enterprise architecture enables and empowers agencies to make better decisions about using IT resources. Its purpose is to provide a framework of principles, guidelines, best practices, migration and implementation strategies, and standards that direct the design, development, implementation and management of information technology resources. The EA helps GovGuam create a technology infrastructure that cost-effectively supports rapid changes in business processes and legislative mandates, and enable requirements for communications and interoperability among government information systems.

This goal is addressed in great detail in the Enterprise Architecture and will not be covered separately here. The action plans that need to be implemented are included in this document.

Strategic Goal 2 - Implement the Enterprise Architecture				
	Task	**Who**	**When**	**Comments**
	CURRENT APPLICATIONS ASSESSMENT	**Shirley**		
1	Identify all current projects within DoA, DRT, and BBMR.			
2	Suspend work on the projects.			
3	Ascertain the goal of the projects and the architecture and standards being used.			
4	Re-instate those projects whose outcome will be inline with the GGEA.			
5	Determine the best course of action for those projects whose outcome conflicts with the GGEA.			
	DATA DUPLICATION ASSESSMENT	**Maryann**		
1	Train the data staff to be able to do this type of work.			
2	Inventory all of the duplicated data within a section or office (not duplication between departments). (e.g. Paper copies for filing, spreadsheets for research and reports)			
3	Determine the reason for each duplicate.			
4	Ascertain whether an application modification would eliminate the duplicate.			
5	Determine priority, funding source, and project plan to make the application modification.			
	CREATE ENTERPRISE DATA DICTIONARY	**Consultant?**		
1	Train the data staff to be able to do this type of work.			
2	The first deliverable will be the identification of all potential sources of common data.			
3	The Enterprise Data Dictionary will define each common data item in such a way as to satisfy the data extraction, manipulation, and presentation requirements of the various applications.			
4	The Enterprise Database will be created to implement the Enterprise Data Dictionary.			
5	As the opportunities arise, the data custodian's application will be modified to populate the Enterprise Database, perhaps redundantly at first.			
6	Gradually as appropriate, all applications will be modified to use the common data from the Enterprise Database instead of their own copies of this data, making their copies of this common data obsolete and un-usable.			

	RECORDS MANAGEMENT ASSESSMENT	**Ken**		
1	The Records Management problem is a Data, Application, and Technology problem. The solution will also touch all these areas, plus IS Management and IT training.			
2	Identify all paper forms currently in use.			
3	Identify all other documents received and stored.			
4	Determine which paper forms could be replaced with an online data entry form.			
5	Establish a project to permanently replace these paper forms with online data entry forms.			
6	Determine which documents must be stored in their original paper form for legal reasons.			
7	Establish a project to design and build an electronic documents storing solution that will allow paper documents to be scanned into electronic format and stored on a computer.			
8	Establish cataloging and storage requirements and procedures for those documents which are not allowed to be stored electronically.			
9	Scan and store all documents.			
10	Destroy all paper documents that are not legally required to be kept.			
	CREATE LIST OF APPROVED APPLICATIONS	**Shirley**		
1	Inventory all of the current applications and the new/modified applications being worked upon. This inventory will be detailed and all encompassing. It will take note of every application housed on every GovGuam computer.		**2005-2010**	
2	Determine which applications shall be supported and which shall not. Publish this as the GovGuam Enterprise Architecture: List of Approved Applications.			
3	Replace all unsupported applications with supported ones. Also, allow the work to continue on the approved new/modified applications.			
4	Provide user training on the new applications features and functions.			
5	Institute a monitoring protocol to periodically ensure that only approved applications are on computers and no unapproved applications have been added.			
	MODULE RE-USE ASSESSMENT	**Consultant?**		
1	Investigate the complete integration of the BACIS application(s) with the Rev & Tax application(s). The goal being to capitalize on the inherent similarities of the two applications (both run on the IBM I-Series, for example).			

2	Where there are two modules which do the same thing, devise a way to use only one module.			
3	Where there are two data stores which contain mostly the same data, devise a way to have only one data store.			
4	Solicit a cost and schedule proposal from the vendor to perform the above modifications.			
5	Secure the funding, assign a project manager, and initiate a project.			
	PLANNED OBSOLESCENCE ASSESSMENT	**Katrina**		
1	Identify those technologies which are aging or even obsolete but still in use.			
2	Determine the suitable replacement technology for each.			
3	Determine priority, funding source, and project plan to replace the aging and obsolete technology with current or emerging technology.			
	WIRELESS ASSESSMENT	**Ben**		
1	Identify needs for new networking capability or repair.			
2	Instead of running new wire, or replacing faulty wire, a wireless solution will be deployed.			
3	Connect Desktop computers, those not fitted for wireless operation, directly to a wireless router.			
4	Remove all Printers and Printer Servers from the network cable and place them onto wireless networks.			
5	Train users in the differences and advantages of wireless technology.			
6	Watch of new opportunities to migrate from wire to wireless.			
	IS SKILLS ASSESSMENT AND ORGANIZATION	**Geri**		
1	Create a skills index showing the skills required of IS staff.			
2	Conduct a skills inventory on each IS employee.			
3	Compare the results of this skills matrix (index vs. inventory).			
4	Create individual training plans for each IS employee.			
5	Fund and send IS employees to training.			
6	Hire or train up middle-manager(s).			
7	Combine DoA Data Section and DRT Data Section into one matrixed section reporting to the new middle-manager.			
	IS STAFFING ASSESSMENT	**Joey**		
1	Using the skills matrix already created, determine the need for additional staffing.			
2	Determine alternative ways of adding this additional staffing at least on a long-term temporary basis. (Alternatives might be: interns, temps, work study, service level agreement with vendors, direct contract, and direct			

	hire.)			
3	Implement all applicable alternatives.			
4	Add these new staff members to the team.			

Strategic Goal 3-- Establish and use effective governance processes, policies, procedures, and organizational structures for IT decision-making and management.

Governance is the set of rules, processes, and structures by which IT resources are managed. Studies have shown that an effective governance structure is the single most important factor in maximizing the value of IT investments. The governance process covers the creation and implementation of the target enterprise architecture, management of the Information Technology Strategic Plan (ITSP), and decision-making for IT budgets and investments. The governance structure also establishes processes for the entire life-cycle of integrated enterprise projects—project planning, project initiation, project management, configuration management, systems development, systems implementation, maintenance, ongoing enhancements, support, project monitoring and evaluation, project/system termination, and project accountability.

Where are we now?

The FMIP Executive Steering Committee (ESC) was chartered to oversee the implementation of the 2003 and 2005 FMIPs. In addition the ESC serves as the highest level configuration control board, but its focus has remained the implementation of the FMIPs. The Executive Order establishing the Bureau of Information Technology has been implemented.

Due to staffing shortages, BIT has a limited ability to budget, plan, fund, or execute IT investments. Vendor and technology standards have beene stablished to comply with a consolidated government technology architecture. Unless there is justification, all agencies must use the government data center to house their applications.

Some standards have been developed, but they are enforced at the procurement phase, creating an adversarial relationship between the business unit making the purchase request and the IT staff ensuring the standards are met. Data Processing and the General Services Administration work to ensure procurements meet the standards, but are not sure they catch all the purchases.

Where do we want to be?

The IT governance structure and processes are formalized, recognized, clearly defined, and actively used in the decision-making process for all IT issues. The governance structure manages and directs the Enterprise Architecture, the ITSP, and IT planning, budget, and funding processes. The governance structure also has established and oversees the processes for the entire life-cycle of integrated enterprise projects—project planning, project initiation, project management, configuration management, systems development, systems implementation, maintenance, ongoing enhancements, support, project monitoring and evaluation, project/system termination, and project accountability.

BIT is managing both the IT staff and the governance process. The CIO has established a cross-departmental committee of knowledgeable stakeholders to serve as the main governance entity. This committee has established subcommittees or workgroups focused on content issues (finance issues, health system, etc.) and a technical group to be responsible for managing, implementing, and updating the Enterprise Architecture.

All procurement will be done online. The implementation of an online procurement system will play a crucial role in reducing costs, improving transparency, and standardizing the procurement process.

How do we get there?

Two critical sets of activities must be undertaken to accomplish this goal—launch the implementation of the Enterprise Architecture and create the governance committee for IT. While BIT has been established by Executive Order, it needs to be codified by statute to ensure long term stability in the management of IT resources. The CIO, needs to establish a cross-departmental committee to serve as the key governance entity for IT. The comfmittee, the Information Technology Executive Committee (ITEC), comprises the Directors of DOA,

BBMR, Public Health, Guam Police Department, Department of Revenue and Taxation, and the Department of Public Works. The Deputy Director of DOA would serve as the Executive Director of the ITEC.

The ITEC needs to establish its roles and responsibilities, establish its procedures and policies for decision-making, and create the support structure it needs to fulfill its charter. The ITEC also needs to charter groups of technical experts to manage, implement and update the Target Enterprise Architecture, and to focus on content area issues, such as finance, public health, or law enforcement.

The ITEC needs to get the executive order approved and issued. Although the Data Processing staff and organization could be assigned to several different organizations as part of the reorganization, it would be most effective if it were established as a division under BIT.

In the short term the governor should issue a directive re-emphasizing the current law regarding Data Processing roles and responsibilities and directing the departments to follow the letter and intent of the law.

The ITEC would be responsible for developing and implementing processes for the entire life-cycle of integrated enterprise projects—project planning, project initiation, project management, configuration management, systems development, systems implementation, maintenance, ongoing enhancements, support, project monitoring and evaluation, project/system termination, and project accountability. The ITEC would provide oversight for all major technology projects and hold project managers accountable for successful project implementation and completion.

How will we know we did it?

We will know we accomplished this strategic goal by collecting and monitoring these performance measures:

- Number of ITEC meetings held

- Attendance rate of ITEC members
- Number and percentage of projects initiated and completed successfully
- Percentage of IT purchases/systems compliant with EA

Strategic Goal 3 - Create and use a governance and organization structure for information technology management					
		TASK	**WHO**	**WHEN**	**COMMENTS**
1		Form Information Technology Executive Council (ITEC)	Lou, Joey, Ken	4/30/2005	
	1.1	Write charter	Ken, Joey	4/30/2005	
	1.2	Identify members	Lou, Joey	4/30/2005	
	1.3	Draft guidelines and criteria for decisions	Joey, Ken	4/30/2005	
	1.4	Schedule and hold kickoff meeting	Lou, Joey, Ken	5/30/2005	
2		Charter groups of technical experts to support IT decision making process and analysis	Lou, Joey, Ken	5/30/05 & ongoing	May become the responsibility of ITEC
	2.1	Seek input from Directors or ITEC members on who should be included in the groups			Technical experts may report to ITEC once formed
3		Monitor implementation of enterprise architechture and ITSP	Joey, Ken, Ben	5/30/05 & ongoing	May become a responsibilty of ITEC
	3.1	Update EA and ITSP annually or when needed		3/30/2006	
4		Review and priortize annual IT budget submissions	Joey, Ben, Ken, John	Oct - Nov 2005	
	4.1	Format and details should be included in budget call			
5		Develop and implement processes for life cycle support of integrated enterprise projects	Joey, Lou	5/30/05 & ongoing	May become responsibility of ITEC and/or CIO
	5.1	Project Planning			
	5.2	Project Initiation			
	5.3	Project Management			
	5.4	Configuration Management			
	5.5	Systems Development and Implementation			
	5.6	Systems Implementation			

	5.7	Maintenance and enhancements			
	5.8	Project monitoring and evaluation			
	5.9	Project/system Termination			
	5.10	Project accountability			
6		Resolve confusion around the Executive Order and the Reorganization and the current law	Ben, Joey, Lou	8/31/2005	
	6.1	Determine the need for a CIO			
	6.2	Define the CIO position (classified?)			
	6.3	Determine funding for CIO and how it fits into the Reorganization			
	6.4	Evaluate the need for CIO staff and budget			
	6.5	Recommend changes to the Executive Order or Reorganization			
	6.6	Appoint or hire a CIO if the position is needed			

Strategic Goal 4--Establish appropriate staffing levels and hire and train staff to be fully proficient.

For GovGuam to be successful implementing the Enterprise Architecture and Information Technology Strategic Plan there must be a sufficient number of staff with the right set of skills. The rapid changes in technology over the past decade have dramatically increased the need for IT staff to keep their skills current and continually update their skills for the emerging technologies. This need has increased the need for training and individual development among IT professionals. The massive changes in the roles that the IT staff will be asked to fulfill as GovGuam moves to an enterprise-wide IT focus will require a major investment in the development of current staff and a concerted effort to acquire additional skills from outside the agency.

Where are we now?

DOA and DRT have experienced significant declines in IT staff over the last few years. DOA Data Processing currently has nine IT staff (down from 29) and DRT has three staff (down from 8). BBMR and many of the line agencies (including DOA) have staff performing IT tasks as collateral duties. Thus a budget analyst, accounting technician, or personnel specialist may spend a portion of their time managing local-area networks, fixing PCs or printers, or writing small programs instead of doing the job for which they were hired and trained.

Many IT staff have retired or left GovGuam over the last several years. No IT staff has been hired for several years and training has been severely limited by a lack of funds. The skill sets of the remaining IT staff have not kept pace with the new and changing demands of the evolving technology. Thus staff lacks the appropriate skills and the IT function lacks an appropriate mix of the skill sets needed to develop and manage the enterprise technology. Staff skills often do not match job requirements, and training tends to focus on the immediate need rather than the longer term development of the staff.

The limited number of IT staff, the compartmentalization of IT staff within departments, and the limited and sometimes specialized skill sets of the staff severely constrain the ability to staff IT projects or needs across agencies. Small pockets of IT expertise separated in different agencies limit opportunities for synergy, cross-training, sharing of resources and expertise, and a coordinated, coherent approach to IT projects, management, and staff development.

As a result of the aforementioned staffing challenges, ever-growing IT security threats are not addressed effectively.

There is a lack of middle management in the IT organizations. This lack creates problems with staff assignments, staff development, and staff performance management. There is little or no 'give and take' on what projects people are assigned, leading to discontent and low morale among the IT staff.

Where do we want to be?

The IT staff will be perceived as a Center of Excellence for information technology by all the agencies in GovGuam. The staff will be highly proficient, well trained, and experienced in all aspects of their duties. Their expertise will be sought out by other agencies and staff in all IT matters. They will promote the use of established hardware and software standards.

The IT functions will have sufficient staff to meet or exceed customer expectations with minimal need for overtime work. Staffing gaps resulting from evolving technology trends will be augmented by certified private sector technology partners.

Service level agreements will be established with agencies and technology vendors. Projects will be initiated and completed in a timely manner as determined by the IT governance process. Sufficient funds will be available for staff training and professional development. Engagements with private sector technology partners will be structured to encourage skills transfer to GovGuam IT staff.

IT position descriptions will be reviewed and updated annually to be kept current and accurate. Positions will be upgraded, or new positions established, to reflect the new duties, responsibilities, and accountabilities of the IT staff.

How do we get there?

The existing IT functions have evolved over time in a somewhat random fashion. Staff have retired or left. Duties and responsibilities have changed. New tasks and accountabilities have been added. All of this has occurred as a result of external events, not by design, and not necessarily in a way that would be most effective for the IT function.

To start the process of building an IT function designed to implement and manage the Enterprise Architecture and to maximize its value to GovGuam, Data Processing needs to conduct a workload analysis. This analysis would examine what work is being done, by whom, how much of it is being done, and how many resources (time, funds, etc.) are being expended. The analysis also would project what work will need to be done in the new IT function. Finally the analysis would identify the skills needed to function successfully in the new IT environment.

Based on this analysis and a comparison to current staffing and staff skills, the workload analysis would propose the staffing plan and skills mix needed for implementation and management of the Enterprise Architecture. The analysis would document the skills needed, assess and document the skills available (and the proficiency levels), and identify the gap between desired and existing skills. Where feasible, these gaps can be filled by private sector technology partners. The information from the workload analysis and gap analysis would be used to develop training and hiring plans for IT and estimate the funds needed to bring the current skills mix to the desired skills mix. The final products would be multi-year staffing and training plans.

A similar, though less extensive, analysis would also be conducted with the line agency staff who are serving collateral IT duties. This effort would identify departmental staff doing collateral MIS duties, document their current skill and workload, and determine their future skills requirements. With this analysis the IT function can formalize their roles, establish effective business relationships with them, develop individual training plans with them, and establish mechanisms for using their skills in selected IT projects.

How will we know we did it?

We will know we accomplished this strategic goal by collecting and monitoring these performance measures:

- User satisfaction surveys
- Number of department requests for support (service orders)
- Number of outstanding service orders
- Cycle time to complete service orders
- Percent of position descriptions current and accurate
- Amount of training completed
- Amount of overtime used
- Pre and post workload analysis
- Percent of staff fully proficient on required skills
- Number of staff doing collateral IT duties who get involved in IT projects

Strategic Goal 4 - Establish appropriate staffing levels and hire and train staff to be fully proficient.

		TASK	WHO	WHEN	COMMENTS
1		Develop skills matrix	Ken	4/20/2005	
	1.1	For all information technology staff			
	1.2	For staff performing IT as collateral duties			
2		Conduct workload analysis	Ken, Bill	6/1/2005	Request 3 weeks of technical assistance to complete steps 2 through 7
	2.1	Update DOA data			
	2.2	Complete new w/a for DRT systems			
	2.3	Identify work performed as collateral duties			
3		Conduct gap analysis between skills & work	Ken, Bill	6/1/2005	
	3.1	Compare results of step #1 and #2 to identify gap			
4		Conduct gap analysis between skills & EA	Ken, Bill	6/1/2005	
	4.1	Compare current skills to the appropriate steps in the EA implementation plan			The timeline for implementing the EA (including BIT) is a prerequisite to this step
5		Create a multi-year staffing plan	Ken, Bill	6/1/2005	
	5.1	Permanent staff by department			
	5.2	Temporary staff by plan			
	5.3	BIT staffing			
6		Create a multi-year training plan	Ken, Bill	6/1/2005	

	6.1	Define curriculum (e.g. DBA, Systems Adm, etc.)			
	6.2	Identify training sequence for new IT skills			
	6.3	Identify training sequence to supplement IT skills			
7		Develop multi-year funding requirements	Ken, Bill	6/1/2005	
	7.1	Staffing			
	7.2	Training			
	7.3	Consultants			

5. Critical Success Factors for the Implementation

The implementation of the Enterprise Architecture and Information Technology Strategic Plan is a long-term, complex, and difficult undertaking. Not only must the current administration, GovGuam staff, and agency executives implement the EA and ITSP, but future administrations, agency heads, and government staff will also need to implement and update them. Some factors are critical to the successful implementation of the architecture and ITSP. A few of these critical success factors are:

- Senior management commitment and leadership.
- Early implementation and effective operation of IT governance body (ITEC).
- Cross-departmental cooperation in IT budgeting, planning, EA and ITSP implementation, and IT governance issues.
- GovGuam-wide compliance with EA standards and principles.
- Enabling legislation (or at a minimum, rescinding legislation that impedes EA and ITSP implementation).
- Changes in personnel policies and practices to support the development, acquisition and retention of sufficient qualified IT staff.
- Early adoption and implementation of the EA and ITSP.
- Sufficient staff resources committed by ITEC executives to implement EA and ITSP in a timely manner.
- Clear assignment of responsibility for implementation of EA and ITSP by ITEC.

Appendix A

ITSP Team Members

FMIP Executive Steering Committee

Lourdes Perez, Director, Department of Administration
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Bertha Duenas, Director, Bureau of Budget and Management Research
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